

MAY 02 2007

Docket No. 529.45588X00

Serial No.10/558,361

Office Action dated February 2, 2007

AMENDMENTS TO THE CLAIMS

The following listing of claims replaces all prior listings, and all prior versions, of claims in the application.

LISTING OF CLAIMS:

1. (Original) An x-ray diagnostic imaging system comprising:
 - an x-ray irradiation unit for irradiating an object to be examined with x-rays;
 - an x-ray diaphragm unit disposed in a direction of x-ray irradiation of the x-ray irradiation unit and shielding the irradiated x-rays except for the x-rays irradiated on a portion used for obtaining an x-ray image of the object to be examined;
 - an x-ray diaphragm setting unit for variably setting the x-ray shielded portion to be shielded by the x-ray diaphragm unit;
 - an x-ray flat panel detector opposed to the x-ray irradiation unit via the object to be examined and imaging x-rays passed through the object to be examined as an x-ray image;
 - an image processing unit for subjecting the x-ray image obtained by the x-ray flat panel detector to an image processing; and
 - a display unit displaying the x-ray image subjected to the image processing by the image processing unit, wherein
 - the image processing unit comprises:
 - a calculation unit reading out data of an x-ray detection element of the x-ray flat panel detector corresponding to the x-ray shielded portion shielded by the x-ray diaphragm unit which is variably set by the x-ray diaphragm setting unit and calculating a line noise component from the read out data of the x-ray detection element; and

Docket No. 529.45588X00
Serial No. 10/558,361
Office Action dated February 2, 2007

a line noise correction unit correcting a line noise of the x-ray image based on the line noise component calculated by the calculation unit.

2. (Original) The x-ray diagnostic imaging system according to claim 1, wherein the calculation unit includes interaction of a data portion read out as the line noise component from the x-ray flat panel detector with the x-ray diaphragm unit variably set by the x-ray diaphragm setting unit.

3. (Original) The x-ray diagnostic imaging system according to claim 1, wherein the image processing unit further comprises a correction execution switching unit switching to execution / non-execution of the line noise correction based on an x-ray condition set to the x-ray irradiation unit.

4. (Original) The x-ray diagnostic imaging system according to claim 1, wherein the image processing unit further comprises a scattered x-ray elimination processing unit identifying an area in which x-rays scattered by the object to be examined are generated on the x-ray flat panel detector corresponding to the x-ray shielded portion variably set by the x-ray diaphragm setting unit and eliminating the identified scattered x-ray generation area from the line noise component calculation performed by the calculation unit.

5. (Original) The x-ray diagnostic imaging system according to claim 1, further comprising a second x-ray diaphragm unit disposed between the object to be examined and the x-ray flat panel detector in addition to the x-ray diaphragm unit and shielding the x-rays scattered by the object to be examined, wherein the x-ray

Docket No. 529,45588X00
Serial No. 10/558,361
Office Action dated February 2, 2007

diaphragm setting unit variably sets a size of an x-ray shielded portion shielded by the second x-ray diaphragm unit.

6. (Original) The x-ray diagnostic imaging system according to claim 1, further comprising:

an operation unit to be used by an operator for setting an x-ray condition to the x-ray irradiation unit, an aperture condition of the x-ray diaphragm unit to the x-ray diaphragm setting unit, and an operation condition to the image processing unit; and

a control unit driving the x-ray irradiation unit, the x-ray diaphragm setting unit, and the image processing unit based on the conditions set by the operation unit.

7. (Original) The x-ray diagnostic imaging system according to claim 6, wherein the control unit causes the x-ray irradiation unit to irradiate the object to be examined with x-rays corresponding to the x-ray condition set by the operation unit; the x-ray flat panel detector detects x-ray image data of x-rays projected by the x-ray irradiation unit and passed through the object to be examined and data of the shielded portion shielded by the x-ray diaphragm unit; and the calculation unit calculates a line noise component from the shielded portion data detected by the x-ray flat panel detector.

8. (Original) The x-ray diagnostic imaging system according to claim 6, wherein the line noise component obtained by the calculation unit is a predetermined statistical value of data of the x-ray detection element of the x-ray flat panel detector,

Docket No. 529,45588X00
Serial No.10/558,381
Office Action dated February 2, 2007

the data corresponding to the x-ray shielded portion variably set by the x-ray diaphragm setting unit.

9. (Original) The x-ray diagnostic imaging system according to claim 6, wherein the control unit controls the correction execution switching unit switching to execution / non-execution of the line noise correction based on the x-ray condition set by the operation unit.

10. (Currently Amended) The x-ray diagnostic imaging system according to claim 6, wherein the control unit controls the a scattered x-ray elimination processing unit identifying an area in which x-rays scattered by the object to be examined are generated on the x-ray detection element of the x-ray flat panel detector corresponding to the x-ray shielded portion variably set by the x-ray diaphragm setting unit and eliminating the identified scattered x-ray generation area from the line noise component calculation performed by the calculation unit.

11. (Original) The x-ray diagnostic imaging system according to claim 6, further comprising a second x-ray diaphragm unit disposed between the object to be examined and the x-ray flat panel detector in addition to the x-ray diaphragm unit and shielding the x-rays scattered by the object to be examined, wherein the control unit controls a size of an x-ray shielded portion shielded by the second x-ray diaphragm unit by the use of the x-ray diaphragm setting unit.

12. (Original) The x-ray diagnostic imaging system according to claim 1, wherein the line noise component obtained by the calculation unit is a predetermined

Docket No. 529.45688X00
Serial No.10/558,361
Office Action dated February 2, 2007

statistical value of data of the x-ray detection element of the x-ray flat panel detector, the data corresponding to the x-ray shielded portion variably set by the x-ray diaphragm setting unit.

13. (Original) The x-ray diagnostic imaging system according to claim 12, wherein the predetermined statistical value is an average value.

14. (Original) The x-ray diagnostic imaging system according to claim 12, wherein the predetermined statistical value is a median.

15. (Original) The x-ray diagnostic imaging system according to claim 12, wherein the predetermined statistical value is a value obtained by combining plural statistical values including the average value and the median.